



Hong Kong Container Security Systems

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Summary

- Hong Kong is a major shipping center. In 12 of the past 14 years it has been the busiest container port in the world.
- It has been a keen partner to the U.S. in its efforts to combat the threat of terrorists using shipping containers to transport illegal shipments.
- It has implemented security features that are the most advanced in the world, including screening of 100 percent of containers since 2003.
- Despite competition from other ports in southern China, Hong Kong looks set to enjoy continued growth in the container shipment sector and has shown to be committed to upgrading its security measures.
- Hong Kong's largest port operator (also the world's largest) owns and operates ports in 20 countries around the world (although not in the U.S.) including a number of ports in the Chinese mainland.
- Opportunities exist for US companies to supply hard and software tailored to the container port sector, although it should be noted that Hong Kong is also a sophisticated supplier of security solutions.

Overall situation

Port and container security has emerged as an area of concern for anti-terrorism professionals. It also concerns economists who point to the catastrophic impact on international trade should a terrorist threat bring a halt or interruption to global shipping.

For the most part, and especially in the United States, security has mostly involved human intelligence and inspection of shipping manifests looking for suspicious cargo – a technique that certain analysts suggest has limited effectiveness.

Market situation in Hong Kong

While responsibility for administering the port is vested in the Director of the Marine Department, unlike many other countries, Hong Kong's container port terminals are owned and managed by the private sector.

The major container port lies in the Kwai Chung-Tsing Yi basin, where nine container terminals (known as CT 1 to 9) are run by five different operators (see list below). They occupy 285 hectares of land, providing 24 berths and 8,530 meters deep-water frontage.

Other container facilities include a number of smaller public dockside areas and mid-stream public and private mooring buoys and anchorages. There is also a purpose built River Trade Terminal (RTT) designed as a consolidation point for containers and bulk cargoes shipped between Hong Kong and the Pearl River Delta ports.

Together these ports have put Hong Kong between the top two international container ports (holding the top spot for 12 out of the past 14 years) with more than 22.6 million Twenty-foot Equivalent Units (TEUs) passing through the city's ports in 2005 (almost three times the volume of Los Angeles). According to the Marine Department, one vessel arrives and more than 125 containers are handled every three minutes, and the average turnaround time for a container ship is less than 13 hours.

Unlike most other countries, all Hong Kong's ports are privately operated and are renowned for their efficiency. The long-term future of the ports looks robust given its position next to the world's largest manufacturing region (the Pearl River Delta region of southern China). Almost one third of China's total trade currently passes through Hong Kong and annual tonnage growth rates are estimated at between four and five percent over the next decade.

Major new infrastructure developments between Hong Kong and the Chinese mainland are also set to reduce container shipment bottlenecks and improve efficiency between Hong Kong's ports and the manufacturing heartland in southern China.

With competition from ports in southern China (such as those in Shenzhen and Guangzhou), Hong Kong operators have concentrated on upgrading security and efficiency to maintain and grow its market share. The city's natural deep-water, silt-free port is also a major advantage as new mega containerships (10,000 to 12,000 TEUs) come on line. 'CSCL Asia', one of the world's largest containerships (max 8,500 TEUs) started its maiden voyage in Hong Kong in 2004.

Along with competition, the ports in southern China and the rest of the Chinese mainland also offer strong opportunity for Hong Kong port operators. The world's largest port operator, Hutchinson Ports, has invested heavily in the Chinese mainland and owns or partially owns a number of facilities from Shanghai to Shenzhen. As covered in more detail below, this opens opportunities for U.S. companies to sell to multiple ports via one port operating company.

Port statistics (2005)

- Cargo throughput = 230,139,000 tonnes (up 4.2% in 2004)
- TEUs = 22,602,000 (almost doubled in past decade)
- 39,140 ocean vessels (inc. 23,380 fully cellular container vessels)
- 117,490 river vessels (taking smaller shipments to/from southern China)

Top ten container ports, TEUs (2005)

Singapore	23,192,000	Kaohsiung	9,471,000
Hong Kong	22,602,000	Rotterdam	9,287,000
Shanghai	18,084,000	Hamburg	8,088,000
Shenzhen	16,197,000	Dubai	7,619,000
Busan	12,521,000	Los Angeles	7,485,000

Source: Hong Kong Marine Department

For statistics dating back to 1989, visit: www.pdc.gov.hk

It is interesting to note that the top six ports are in Asia and that almost 40 million TEUs are handled in Hong Kong and neighboring Shenzhen alone. It is also important to remember that the world's largest port operator, the Hong Kong-headquartered Hutchison Port Holdings, owns and operates major ports in six of the top seven countries listed above.

Security systems in Hong Kong ports

The enactment of the International Ship and Port Facility Security (ISPS) Code from July 2004 has prompted national governments to step up security measures, so as to ensure that all ships leaving for other international ports do not face sanctions, including denial of entry.

Hong Kong was an early implementer of the 'Container Security Initiative' (CSI) championed by the U.S. Bureau of Customs and Border Protection (CBP) of the Department of Homeland Security.

CSI consists of four core elements: (1) using intelligence and automated information to identify and target high-risk containers; (2) pre-screening those containers identified as high-risk, at the port of departure, before they arrive at U.S. ports; (3) using detection technology to quickly pre-screen high-risk containers; and (4) using smarter, tamper evident containers.

However Hong Kong, because of its position as a global container hub, and fuelled by its strong trading relationship with the United States has taken further steps to pilot or implement security technologies and systems. The use of Radio Frequency Identification tags (or RFID) has been one such initiative, which has gained strong support from major retailers such as Wal-Mart, Metro and Tesco's which have been asking suppliers to 'tag' shipments to improve supply chain processes and, to an extent, to guard against container tampering.

The most important development has been a new scanning technology from U.S. supplier, San Diego-based Science Application International (SAIC).

The technology, which was introduced by the Hong Kong Terminal Operators Association in 2004, uses high tech screening machines to inspect every container. Trucks carrying the TEUs, or smaller shipments, pass through two giant scanners, with one checking for nuclear radiation, while the other uses gamma rays to seek out any dense, suspicious object made of steel or lead that could shield a bomb from the nuclear detector.

These images are displayed on large flat panel screens for scrutiny by security personnel, or to be passed on to security officials (along with the container ID and other information) in other countries. In addition to stopping dangerous cargo before it enters the supply chain, the technology has the potential to minimize the impact on global trade should something happen which prompts a shutdown of shipping lines.

Other technologies designed to increase security and enhance efficiency include:

- Gate Automation:

With the introduction of Information Exchange Services and tractor booking systems, the gatehouse operations are now automated at Kwai Chung Port. The gate operations are further enhanced by the launch of common smart-card based tractor identity cards (TID) for external tractors, greatly reducing turnaround time.

- Electronic Data Interchange Technology (EDI):

The Hong Kong Port has been promoting the use of Electronic Data Interchange (EDI) since 1988. EDI enables accurate information links between shipping lines and terminal operators and is being upgraded on an on-going basis to improve accuracy and extend its application.

- Terminal Management System:

To handle the millions of containers that pass through Hong Kong, the container terminal operators have a bespoke terminal management system. This system integrates all terminal activities including gate, yard and vessel operations. The system provides optimization of operation parameters, a common database for the terminal operations and a real-time updating of the data. Container terminal operators are equipped with real-time monitoring systems to ensure accurate, secure and efficient services.

- Future Development:

Hong Kong container terminal operators will continue to develop information technology to further improve productivity, increase customer service levels, upgrade security and save costs. Hong Kong container terminal operators also share their expertise in container handling business with their affiliates in Mainland China and other parts of the world.

Opportunities for U.S. companies

The sheer volume of containers passing through Hong Kong, along with its commitment to being a world-leader in container security makes it an attractive market for U.S. security system suppliers. Equally Hong Kong is attractive as its major port operators own and operate port facilities around the world, making them potential clients with an international network.

A recent study by the United Nations Economic and Social Commission for Asia and the Pacific (ESCAP) points out that Asia's share of containerized exports is expected to top 50 percent by 2011. Within the same time period, China is expected to be Asia's largest container market, accounting for around 46 million TEUs.

In order to handle the anticipated port container traffic in 2011, the Chinese mainland, together with Hong Kong and Taiwan, will require a USD 11 billion investment to build space for 160 new berths, and spending on security measures is expected to grow in line with this expansion.

Both private operators (see below) and the government are potential customers for security systems. For example, the Hong Kong's Custom and Excise Department has indicated that it will be looking for additional security equipment and services to boost coverage at sea and land borders. Its potential shopping list includes scanners, x-ray machines, viewing screens, and integrated security systems.

Challenges for U.S. suppliers include the high level of sophistication in port security already in operation in Hong Kong. In fact, to date Hong Kong has been successfully exporting its technological know-how around the world via its network of Hong Kong-owned ports.

That said, the screening technology used by the Hong Kong Terminal Operators Association was purchased from a U.S. supplier, and the reputation of U.S. technology is high in Hong Kong.

Major container port operators:

- Hongkong International Terminals (owned by Hutchison Port Holdings Group) – www.hit.com.hk
- Modern Terminals Limited – www.modernterminals.com
- Dubai Ports International – Hong Kong – www.dpa.co.ae
- COSCO-HIT Terminals – www.cosco.com.hk & www.hit.com.hk
- Asia Container Terminals Limited – www.asiacontainerterminals.com

There are also over 20 large and small midstream operators and numerous companies operating from dockside or buoy/anchorage facilities.

Trade event

Asian Securitex 2008 - The 10th Asian International Security, Safety and Fire Protection Show and Conference, June 2008 organized by Hong Kong Exhibition Services Ltd. (www.hkesallworld.com).

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